TOPICS ON FINANCIAL ENGINEERING (III)

by CHENG-DER FUH

I. Monte Carlo Methods in Financial Engineering.

    1. Generating Random Numbers, Random Variables and Sample paths.

    2. Variance Reduction Techniques and Discretization Methods.

    3. Pricing American Options and Applications in Risk Management.

    References:

1. Glasserman, P. *Monte Carlo Methods in Financial Engineering.* Springer-Verlag, New York, 2004.

2. Asmussen, S. and Glynn, P. *Stochastic Simulation.* Springer-Verlag, New York, 2007.

II. Advanced and Research Topics (if time permitted).

    1. Sequential Monte Carlo methods in stochastic volatility models and stochastic intensity models.

    2. Free boundary problems in partial differential equations, and computational issues in option pricing.

    References:

1. Doucet, A., de Freitas, N. and Gordon, N. *Sequential Monte Carlo Methods in Practice.* Springer-Verlag, New York, 2001.

2. Journal articles.